

**BRIGHTNESS CONTROL OF DISPLAYS  
USING EXPONENTIAL CURRENT SOURCE**

Abstract of the Disclosure

5           An apparatus and method of controlling brightness of a display device by  
providing a brightness control current that is exponentially related to digital inputs, so  
as to maintain perceived uniformity in changes to the level of display brightness. One  
embodiment of the apparatus comprises at least one digital input, an attenuator which  
receives the digital input and a reference voltage, and which outputs an attenuated  
10       voltage based on the digital input; a voltage-to-current converting amplifier circuit  
converts the attenuated voltage to current; and a current mirror circuit connected to an  
LED array provides current to control the LED array, wherein the control current is  
substantially exponentially related to the at least one digital input. Another embodiment  
comprises an input trimming resistor network used to enhance the accuracy of the  
15       output current values by compensating for the circuit variances as additional current  
mirrors are added to the apparatus.

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